REVISED QUOTE SHEET
October 2, 2013

THE UNIVERSITY OF ALABAMA

INVITATION FOR BID

T053199
VARIABLE PRESSURE SCANNING ELECTRON MICROSCOPE

ADDENDUM # 2
October 2, 2013

ATTENTION: This is not an order. Read all instructions, terms and conditions carefully.

IMPORTANT: RESPONSE TO RFP MUST BE RECEIVED BY WEDNESDAY, OCTOBER 9, 2013 @ 2:00 P.M. CST

Offeror must acknowledge receipt of this and any addendum as stated in the Invitation for Bid.

The following shall become part of the Invitation for Bid.

- **THE BID OPENING DATE HAS BEEN <u>EXTENDED</u> TO WEDNESDAY, OCTOBER 9, 2013.**
- **<u>BID SPECIFICATIONS</u> (Section 10.0) <u>AND TECHNICAL SPECIFICATIONS</u> (11.0) <u>HAVE CHANGED</u>. PLEASE USE THE ATTACHED <u>REVISED QUOTE SHEET</u> FOR BID T053199 WHEN SUBMITTING YOUR BID.**

Please let me know if you have any questions.

Thank you.

The IFB may be found at http://purchasing.ua.edu/pdfs/PendingBids/T053199.pdf

10.0 QUOTE SHEET

QUOTE THE FOLLOWING ITEMS OR EQUAL

SCOPE: THE UNIVERSITY OF ALABAMA REQUESTS SEALED BIDS TO FURNISH, DELIVER AND INSTALL A VARIABLE PRESSURE SCANNING ELECTRON MICROSCOPE AS PER ATTACHED GENERAL AND TECHNICAL SPECIFICATIONS OR EQUAL.

NOTES:

10.1 The manufacturer and product number for each item that you are quoting must be completed for your bid to receive consideration.

10.2 **PLEASE INCLUDE PRODUCT/TECHNICAL SPECIFICATIONS** FOR YOUR BIDTO RECEIVE CONSIDERATION.

10.3 All items must be fully warranted for a minimum period of the specified manufacturer's warranty. Service or replacements of any defective items are to be proved by the successful contractor at no charge to the University during the period of guarantee.

10.4 THE UNIT COST OF EACH ITEM must include any shipping and handling charges. Do NOT list shipping and handling as a separate charge. QUOTE FOB THE UNIVERSITY OF ALABAMA, TUSCALOOSA, AL 35487.

ITEM NO.	APPROX. QTY.	DESCRIPTION	UNIT COST	TOTAL COST
1.	1	(New) Variable Pressure Scanning Electron Microscope (SEM) System	$_____	$_____
		***SEE ATTACHED TECHNICAL SPECIFICATIONS (SECTION 11.0) ***		
		MANUFACTURER_____ PRODUCT NO. _____		
2.	1	4 Stub Holder, (15x4p), for Type 2. Mounts, 4 Standard, Stub (15mm). Stub can be selected by the stage Control Menu	$_____	$_____
		MANUFACTURER_____ PRODUCT NO. _____		
3.	1	Wehnelt for Pre-centered Cartridge Filament	$_____	$_____
		MANUFACTURER_____ PRODUCT NO. _____		

4.	1	Infrared Chamberscope, 7” Monitor	$_____	$_____
		MANUFACTURER_____ PRODUCT NO. _____		
5.	1	Environmental Secondary Electron Detector (ESED). Variable Pressure Secondary Electron Detector For Type 1 and 2.	$_____	$_____
		MANUFACTURER_____ PRODUCT NO. _____		
6.	1	RFQ-Deben Coolstage Substage for heating & cooling Specimens in low vacuum SEMs which helps to retain water and stop specimen structure from changing during Observation. Temp range from -25 to +50 degrees C	$_____	$_____
		MANUFACTURER_____ PRODUCT NO. _____		
7.	1	Connector Kit for Deben Cool Stage, For Type 2	$_____	$_____
		MANUFACTURER_____ PRODUCT NO. _____		

OPTIONS:

8.	1	On-site Installation and Set Up Of Variable Pressure Scanning Electron Microscope	$_____
9.	1	On-site Training for Advanced Application Training and Basic Training on systems	$_____
10.	1	Off-site Training for Advanced Application Training and Basic Training on systems	$_____

11.	1	Extended Warranty (warranty beyond the manufacture's published warranty)	$_____
		Less Educational Discounts	$_____
		GRAND TOTAL	$_____

NOTE: Warranty on Equipment quoted:

Does warranty include parts & labor: _____Yes _____ No

Extended Warranty: Details of services offered and coverage time frame, etc..:

INSTALLATION: Responsibilities related to installation:

Define and explain all of **your company's** responsibilities related to the installation of the equipment requested in the bid:

Define and explain the **University's** responsibilities related to the installation of the equipment requested in the bid:

NOTE: Details for On-site Training (# of days, details, etc.):

Size of the crates & cartons in the shipment (dimensions & weight):

Who is responsible for unloading the equipment from the truck?

Is a forklift or other rigging needed to unload and place the equipment? Please explain:

NOTE: List ECCN (Export Control Classification Number) for items quoted:

Delivery is needed in four (4) weeks.

Can you meet this delivery requirement: _____ Yes _____ No

If No, specify earliest delivery date: _____

11.0 TECHNICAL SPECIFICATION SHEET

11.1 Variable Pressure Scanning Electron Microscope (SEM) System

- Large Specimen Chamber
- Five (5) Axis Motorized Computer Eucentric State (100mm x 50mm) with 12/+90 degrees tilt
- Accommodates 8" Diameter Specimens (max 85mm height)
- 5 Segment Low Impedance BSE (Backscattered Electron) Detector with Topo, Comp, and 3D Modes
- 5 Position Objective Strip Apertures w/No Touch Auto Aperture Alignment
- Signal Mixing w/Medium and Full Screen Viewing and Dual Mag
- Turbo Molecular Pump (TMP) Vacuum System (water recirculation not required)
- Raster Rotation and Dynamic Focus
- Integrated PCI Data Management and Image Processing System
- Reporter Generator
- Ethernet Board and CD-R/W/DVD Drive, Includes:
    - Type 2
    - 24" LCD flat Panel Display
    - iEDX Package (DBC, External Communication & Adjustment Plates)
    - Hi Mouse
    - Ghost Drive
    - Transformer
    - Compressor
    - Ulvac Pump Assembly
    - PCI OEM Software (lab and office)

<u>ADDITIONAL SPECIFICATIONS:</u>

11.2 Design:

a. The Scanning Electron Microscope (SEM) must be a state of the art computer controlled system and support a variety of analytical attachments including an Energy Dispersive X-ray System (EDS).

b. The SEM will provide the capability of observing samples over a wide range of accelerating voltages. It will be capable of observing uncoated samples by means of a variable pressure (VP) sample chamber equipped with a backscattered electron detector (BSED). It must be possible to quickly switch the sample chamber between VP and high vacuum modes via software only, without the need to manually change or adjust any hardware within the sample chamber.

c. The SEM must have system protection against power, heat and vacuum failures.

d. The SEM shall be shown to meet all specifications within this document.

11.3 Performance: Minimum requirements.

a. The SEM shall be capable of achieving a resolution of at least 3.0nm at 30kV and 10nm at 3kV with a secondary electron detector (SED) in high vacuum mode. The SEM shall be capable of achieving a resolution of at least 4.0nm resolution with a backscattered electron detector (BSED) in VP mode. These must be demonstrated using a standard tungsten filament, without the need to change or adjust "differential" apertures or other hardware within the sample chamber while

going between high vacuum and VP modes.

b. The analytical WD shall be no greater than 10mm and the chamber's EDS ports will provide a take-off-angle of at least 35 degrees for EDS analysis.

c. The usable magnification range should be variable from 5X to 300,000X, regardless of vacuum mode.

d. The accelerating voltage shall be adjustable from 300V to 30kV.

e. The SEM shall have a variable pressure (VP) 6Pa to 270Pa.

f. Adjustment of sample chamber vacuum level must be accomplished through the SEM software interface and must not rely on any manual hardware adjustments.

g. Selected VP vacuum level must be continuously monitored and adjusted to ensure accuracy and reproducibility. When in VP mode, the pressure at the specimen area should be displayed on the image screen and recorded automatically with the digital image.

h. The SEM shall have the capability go directly from atmospheric pressure to the requested VP level without the need to first take the specimen chamber to high vacuum.

i. The SEM power requirement: Equipment will need to have its own power supply that can be served from 120, 208 or 480 volts.

j. The SEM "footprint" must not exceed 9 feet (Width) x 6 feet (Depth).This is the maximum allowable space in the laboratory.

11.4 Electron Optics: Minimum requirements.

a. The electron gun shall be a cartridge-type wehnelt assembly. Filaments should be pre-centered requiring no alignment to the wehnelt assembly.

b. The SEM shall provide auto filament saturation, auto emission current, auto gun alignment and auto condenser lens alignment in both high vacuum and VP mode. Filament saturation at low, medium or high presets shall be continuously monitored and automatically adjusted, requiring no manual adjustments at any time.

c. The SEM shall provide continuous gun bias adjustment and selectable presets throughout the entire kV range. In addition to software settings to adjust the bias of the Wehnelt cap, the electron gun hardware shall utilize a quad-bias design, providing four separate resistor circuits to increase emission current over four discreet kV ranges, in high vacuum and/or VP modes, without degrading filament life.

d. The SEM column shall be mounted in center of chamber and not offset to the side.

e. The SEM column shall utilize a single "column liner" to hold and facilitate easy replacement of all column apertures between the gun and objective lens (OL) aperture (excluding, the OL aperture). The column liner should be readily accessible from below the gun and not require any disassembly of the column or access via the chamber. SEMs that include a column liner for only 1 or 2 condenser apertures will not be considered.

f. The SEM shall utilize dual condenser lenses, which allow adjustment of spot size without focus change or image shift.

g. The SEM shall provide the ability to automatically deflect the electron beam away from the specimen after completing image capture (beam blanking) to avoid beam damage or charging the sample. Manual beam deflection, by clicking the mouse, shall also be available.

h. Whether the instrument is in high pressure or VP modes, there must be no restriction in the use of basic operating parameters such as selectable magnification or accelerating voltage ranges,

i.e., the same range of magnification must be selectable, regardless of vacuum mode.

i. The SEM's auto functions (brightness/contrast, focus, stigmation, gun alignment, filament saturation and aperture alignment) must operate in both the high vacuum and VP modes without restriction. Manual overrides should also be available for all auto-functions.

j. The SEM must provide a variable objective aperture which is adjustable outside of the vacuum. The objective aperture shall consist of an aperture strip with at least five-positions (four apertures plus "open") and utilize a click-stop assembly (not a micrometer).

k. An automatic beam wobbler shall be included to allow manual alignment of the objective aperture if desired.

l. The optics must provide an electrical image shift of ±50 microns at the standard analytical and imaging working distance of 10mm.

m. The SEM software shall include a filament imaging function that can be used to monitor the alignment and cleanliness of the column. This feature must be operational in both the high vacuum and VP modes.

11.5 Specimen Chamber and Stage: Minimum requirements.

a. The SEM chamber shall provide multiple ports for interfacing a variety of detectors and accessories (EDS, EBSD, CL, Faraday, chamber scope, feed-throughs, etc.).

b. The SEM chamber shall provide suitable for EDS or other x-ray detectors, focusing at an analytical working distance (AWD) of 10mm.

c. The SEM chamber must have a port directly below and planar with the EDS port, suitable for mounting an EBSD camera/detector, and providing optimal geometry for simultaneous EDS/EBSD data collection.

d. The chamber shall accommodate up to a 200mm diameter sample.

e. The SEM stage shall be affixed to chamber door, such that it is removed from the chamber and fully accessible outside of the chamber when the door is opened.

f. The stage shall be computer controlled, with 5-axis computer eucentric (X, Y, Z, R, and T) motorization and provide an X/Y travel of at least 100mm x 50mm, Z travel from 5 to 65mm and a tilt range of minus 20 to 90 degrees.

g. The SEM software shall provide an interactive, graphical "joystick" to control all five axes of the motorized stage with the mouse. Automatic software limits, set by the computer, will be available to prevent collision between the sample and chamber interior.

h. The SEM shall have the capability to image, from edge to edge, a sample 5 inches in diameter. It will be able to image a 85mm tall sample and allow for EDS microanalysis of a 80mm tall sample at 10mm AWD, without having to disassemble the stage or losing X, Y, Z, R, or T stage motorization.

i. The stage shall have a move function capable of using a stored image to return to the same stage coordinates at which the image was captured.

j. The SEM shall include an image navigation function that allows an imported image (Image from any camera, optical microscope, etc.) or low magnification SEM reference image to be used for moving the stage to any selected regions on the sample. The image navigation function shall also allow automatic changing of magnification to match a region's area.

k. The SEM shall provide a stage history function to graphically display stage movement and log

every position where an image was acquired. The SEM will return to any logged location when selected/clicked on with the mouse.

l. Vendor shall supply 4 Stub Sample Holder, (15x4). Mounts 4 standard stub (15mm).Stub can be selected by the stage control menu.

m. This should also include the necessary SEM stage S/W to prevent any damage to the stage or column of the SEM during operation of the cold stage.

11.6 Vacuum System: **Minimum requirements.**

a. The SEM shall be designed to use a turbomolecular pump (TMP), rated for at least 200 L/minute, for high vacuum operation.

b. The SEM shall require only one rotary roughing pump (RP), rated for at least 160 L/minute. The RP will be used for evacuation of the high vacuum pump and control of the chamber pressure while operating in the VP mode.

c. System evacuation following sample exchange shall not exceed 2 minutes. Initial system startup time from a “cold” state must not exceed 6 minutes.

d. The SEM column shall provide vacuum conduits at both the electron gun chamber and objective lens aperture to maintain high vacuum throughout the column regardless of the specimen chamber operating pressure.

11.7 Electron Detectors:

a. The SEM shall include a conventional Everhart-Thornley secondary electron detector (SED).

b. The SEM shall include an integrated secondary electron (SE) bias accelerator plate, placed near the objective lens, to increase the collection yield of the SED at short working distances. The SE accelerator plate voltage must be adjustable, via the SEM interface, to provide high resolution, normal or topographical images.

c. The SEM shall include a solid-state backscattered electron detector (BSED).

d. Each segment shall have a dedicated pre-amp circuit to allow independent control of gain and polarity (+, - and off) for each segment of the detector, selectable via the user interface.

e. The BSED will include preset compositional, topographical and “3D” imaging modes, with options for controlling perspective.

f. Each of the BSED’s quad segments shall be capable of independently producing a specimen image showing compositional and topographical angles.

g. The mode of BSED operation shall be automatically listed on the data bar of the SEM and captured with the image.

h. The brightness and contrast adjustments for the BSED must be made through the same controls for the SED.

i. The BSED shall allow specimens to be imaged at a working distance of 5mm or less. Location of the detector must not hinder high resolution SE imaging or limit EDS analysis.

j. The BSED will be able to provide a clear image, suitable for focus and stigmation, while operating at TV scan rates.

k. BSED will have both inserted (operational) and retracted (parked) positions. The SEM operator

will be able to mechanically move the BSED between the two positions, without having to physically touch the detector.

l. The SEM shall be equipped with a special “environmental” SED for use while in the VP mode of operation. All automatic functions such as auto-focus and auto brightness shall be fully functional when using this detector. The detector must also be functional at the longest working distance provided by the microscope.

11.8 Scanning/Display System: **Minimum requirements.**

a. The SEM must employ a Windows 7 based Graphical User Interface (GUI) that allows control of commonly used functions through keyboard and mouse

b. The SEM shall provide a movable knob set which permits control of frequently used parameters such magnification brightness and contrast, focus, stigmation, etc.

c. The microscope must incorporate as standard a high-resolution frame memory system of at least 5120 x 3840 pixel resolution for captured images.

d. The SEM shall be capable of capturing and storing images at 640 x 480, 1280 x 960, 2560 x 1920 or 5120 x 3840 pixel resolution with integration from 1 to 1024 frames.

e. The SEM shall provide live time signal mixing of the SED, BSED and/or the VP SED signals.

f. The SEM must have at least 2 true TV scan rates, 2 fast scan rates, 5 slow-scan rates, reduced raster, linescan, waveform monitor, direct photo, memory photo and frame integration, up to 1024 frames.

g. The SEM shall provide X-ray mode functions including spot, line and reduced area raster for EDS operation.

h. The software shall include a “full screen mode” in which the live image fills the monitor. The SEM must also include a standard screen mode and a reduced area mode.

i. The SEM shall provide raster rotation, tilt compensation and dynamic focus.

j. The SEM shall include a digital beam control (DBC) interface to allow for external control by an EDS system.

k. A BNC type RS-170 output shall be provided to interface between an external monitor, video grabber or other devices.

l. Digital stereo pair imaging capability must a standard feature within the SEM/image capture system. The software must allow alignment of the digital images.

m. The system will provide the ability to form an oblique (or bird's-eye-view) image from a captured image, providing a three dimensional visualization and topographic information that may not be represented in the captured SEM image.

n. 3D surface roughness software that works in conjunction with a 5-Quad BSED must be optionally available. This program will provide state of the art 3D viewing (without special glasses), animation and surface roughness profiling with no physical tilting of SEM stage.

11.9 General Operation: Minimum requirements.

a. The SEM operating software shall incorporate an “auto beam setting” mode that automatically

sets the filament saturation level, aligns the gun and sets the bias after a filament change without any manual gun or column alignments.

b. The SEM operating software must provide a function to save imaging parameters as a re-loadable conditions file along with a thumbnail image for any sample. The saved parameters shall include, at a minimum: magnification, beam current, WD, detector, vacuum mode, stage position, contrast, stigmation/alignment and accelerating voltage.

c. The software shall provide the ability to label images with a customizable data bar that can include, at the minimum: accelerating voltage, magnification, micron bar, working distance value, date, time, detector, BSED detector mode, comment, graphic, measurement and vacuum level for VP mode. The data bar must also include the capability to have a black or transparent background behind the data.

d. User-input alphanumeric data that is inserted onto an image shall employ “edging” techniques that eliminate the need for use of a “black background” for visibility even if data is placed in an area of extreme image brightness.

e. The SEM operating software shall provide both an illustrated on-line help system and user manual with illustrations.

f. The SEM shall include animated computer videos for maintenance procedures such as filament exchange, gun alignment, condenser lens aperture exchange and moveable objective aperture assembly exchange.

g. The SEM operating software shall include an integrated, image database and management system. The system shall provide for saving, processing, measurement, annotation and archiving of all images and associated data and documents. The database should be integrated with the SEM, supported by the SEM manufacturer.

h. The SEM operating software shall provide report generation software, allowing customized report templates, adjustment of images and listing of operating parameters.

THE UNIVERSITY OF ALABAMA

INVITATION FOR BID

T053199
VARIABLE PRESSURE SCANNING ELECTRON MICROSCOPE

ADDENDUM # 1
September 24, 2013

ATTENTION: This is not an order. Read all instructions, terms and conditions carefully.

IMPORTANT: RESPONSE TO RFP MUST BE RECEIVED BY FRIDAY, OCTOBER 4, 2013 @ 2:00 P.M. CST

Offeror must acknowledge receipt of this and any addendum as stated in the Invitation For Bid.

The following shall become part of the Invitation For Bid.

THE BID OPENING DATE HAS BEEN EXTENDED TO FRIDAY, OCTOBER 4, 2013. REVISED SPECIFICATIONS WILL BE ISSUED AT A LATER DATE.

The IFB may be found at http://purchasing.ua.edu/pdfs/PendingBids/T053199.pdf

THE UNIVERSITY OF ALABAMA

INVITATION FOR BID

ATTENTION: This is not an order. Read all instructions and terms and conditions carefully.

INVITATION NO.:	T053199	**RETURN ALL COPIES OF BIDS TO:** **THE UNIVERSITY OF ALABAMA** **PURCHASING DEPARTMENT** **(Street Address) 1101 Jackson Ave Suite 3000** **Tuscaloosa, Alabama 35401** **OR** **(Mailing Address) Box 870130** **Tuscaloosa, Alabama 35487** **PHONE: (205)348-5230 FAX: (205) 348-8706**
Issue Date:	09/10/2013	
Title:	Variable Pressure Scanning Electron Microscope	
Buyer:	Sharon O'Neal	
Phone:	(205) 348-5037	
Email:	soneal@fa.ua.edu	

Bid Responses may NOT be faxed or emailed.

IMPORTANT: SEALED BIDS MUST BE RECEIVED BY 09/25/2013 @ 2:00 P.M. CST TIME

Bid number and opening date must be clearly marked on the outside of all bid packages.

1. Pursuant to the provisions of the State of Alabama Competitive Bid Law, Section 41-16-20 and/or 39-2, rules and regulations adopted there under sealed bids will be received on the items noted herein by The University of Alabama Purchasing Department until the date and time stated above. In accordance with Alabama State Bid Law Section 41-16-27, where applicable, the University reserves the right to enter into negotiations within thirty (30) days of the bid opening.
2. The University's General Terms and Conditions and Instructions to Bidders, apply to this Solicitation and shall become a part of any contract issued hereunder.
3. For purposes of this Solicitation, the Solicitation documents shall consist of the following components:
   a) Invitation for Bid and any Addenda; b) General Terms and Conditions; c) Instructions to Bidders
   In the event that any provision of the component parts of the Solicitation conflicts with any provision of any other component parts, the component part first enumerated shall govern.
4. This Agreement and any disputes hereunder shall be governed by the laws of the State of Alabama without regard to conflict of law principles.

CERTIFICATION PURSUANT TO ACT NO. 2006-557

Alabama law (section 41-4-116, code of Alabama 1975) provides that every bid submitted and contract executed shall contain a certification that the vendor, contractor, and all of its affiliates that make sales for delivery into Alabama or leases for use in Alabama are registered, collecting, and remitting Alabama state and local sales, use, and/or lease tax on all taxable sales and leases in Alabama. **By submitting a response to this solicitation, the bidder is hereby certifying that they are in full compliance with Act No. 2006-557**; they are not barred from bidding or entering into a contract pursuant to 41-4-116, and acknowledges that The University of Alabama may declare the contract void if the certification is false.

DISCLOSURE STATEMENT

1. If you or any owner, officer, partner, board or director member, employee, or holder of more than 5% of the fair market value of your firm or any member of their households is an employee of The University of Alabama, this information must be included in your solicitation response. Failure to disclose this information in your response may result in the elimination of your proposal from evaluation.
2. If you or any owner, officer, partner, board or director member, employee, or holder of more than 5% of the fair market value of your firm or any member of their households is an employee of The University of Alabama; and you or your firm is awarded a contract as a result of this solicitation, then within ten (10) days after the contract is entered into, you agree to file a copy of that contract with the State of Alabama Ethics Commission in accordance with Code of Alabama, Section 36-25-11 and upon request by the University furnish evidence of such filing.
3. By accepting payments agreed to in any purchase order resulting from this bid, Contractor certifies that to its knowledge no University employee or official, and no family members of a University employee or official, will receive a benefit from these payments, except as has been previously disclosed, in writing, to the University on the Disclosure Statement of Relationship Between Contractors/Grantees and Employees/Officials of The University of Alabama.

AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST

I hereby swear (or affirm) under the penalty for false swearing as provided in Code of Alabama 6-5-180 that

1. In accordance with Code of Alabama Section 41-16-25, amended 1975 that the attached response has been arrived at independently and has been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other vendor of materials, supplies, equipment or services described in the Invitation for Bids, designed to limit independent bidding or competition;
2. The contents of the bid or bids have not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid or bids and will not be communicated to any such person prior to the official opening of the bid or bids.
3. The bidder is legally entitled to enter into contracts with The University of Alabama and is not in violation of any prohibited conflict of interest, including those prohibited by the Code of Alabama 13A-10-62, as amended 1975.
4. I have fully informed myself regarding the accuracy of the statement made above.

THIS AREA MUST BE COMPLETED

DELIVERY AFTER RECEIPT OF ORDER:	**NAME OF COMPANY:**	**PHONE:**
FEDERAL EMPLOYER ID NO.:	**ADDRESS:**	**FAX:**
PAYMENT TERMS:	**ADDRESS:**	**E-MAIL:**
SHIPPING TERMS: **F.O.B. DESTINATION–PREPAID AND ALLOWED**	**CITY, STATE & ZIP CODE:**	**DATE:**
QUOTE VALID UNTIL:	**SIGNATURE:**	**Typed/Printed Name of Signor**

SIGNATURE REQUIRED: This bid cannot be considered valid unless signed and dated by an authorized agent of the bidder. Type or print the information requested in the spaces provided.

INVITATION FOR BID

The University of Alabama requests sealed bids as per attached general and technical specifications or equal unless otherwise specified in the Special Conditions.

All Bidders submitting a bid must read all specifications carefully and respond accordingly. Failure to do so may eliminate your bid from consideration due to non-compliance.

1.0 GENERAL SPECIFICATIONS

1.1 All bid responses, technical information and any other attachments furnished to The University of Alabama in response to this request for quotation must be submitted in duplicate (THE ORIGINAL BID AND ATTACHMENTS WITH ORIGINAL SIGNATURE AND ONE EXACT COPY OF THE ENTIRE BID RESPONSE). Bidders who fail to follow this format may be disqualified from the evaluation and award phase of this bid.

1.2 The stated requirements appearing elsewhere in this solicitation shall become a part of the terms and conditions of any resulting contract. Any deviations there from must be specifically defined. If accepted by the University, the deviations shall become part of the contract, but such deviations must not be in conflict with the basic nature of this solicitation.

Note: Bidders shall not submit their standard terms and conditions or purchase order terms as exceptions to or modification of the terms and conditions of this solicitation. Each exception to or modification of a University term and condition shall be individually listed by the bidder. Failure to follow this instruction may result in the determination that a bid submission is non-responsive to a solicitation and the rejection of that bid.

1.3 The issuance of a University Purchase Order (P#) or a signed Contract document is required to constitute a contract between the successful Bidder and the University which shall bind the successful Bidder to furnish and deliver the commodities ordered at the prices, terms and conditions quoted and in accordance with the specifications of this Solicitation as well as the terms and conditions of the University's Purchase Order or Contract. No shipments are to be made to The University of Alabama without the issuance of a Purchase Order (P#). (Bidders are not to accept or ship items against a requisition number "R" #.)

1.4 Any questions concerning these specifications should be directed to the Buyer listed on the signature page.

1.5 No department, school or office at the University has the authority to solicit or receive official Solicitations nor authorize Solicitation or Contract changes other than the Purchasing Department. All solicitations are issued under the direct supervision of the Associate Director for Purchasing and in complete accordance with the State of Alabama Bid Law, Section 41-16-20 and University policies and procedures.

1.6 The terms and conditions included in this Solicitation along with any addenda, any University contract and/or University purchase order(s) issued referencing this Solicitation, the University's General Terms and Conditions, Instructions to Bidders shall constitute the entire and exclusive Contract between the University and the successful Bidder.

1.7 **State of Alabama Immigration Law**

If the successful bidder is located in Alabama or employs an individual or individuals within the State of Alabama, the successful bidder shall provide a copy of its Employment Eligibility Verification (E-Verify) company profile. To expedite the ordering process, this document may be submitted with the bid response.

If the successful bidder is not located in the State of Alabama and does not employ an individual or individuals within the State of Alabama, the successful bidder shall complete and return the Certification of Compliance form included with this Request for Price Quotation (E-Verify company profile is not required). To expedite the ordering process, this document may be submitted with the bid response.

If you are not currently enrolled in E-Verify, follow these instructions:

- Log onto www.uscis.gov/everify
- Click “Getting Started” for information about the program, requirements, and enrollment process.
- Click “Enroll in E-Verify” and begin enrollment process.
- When enrollment process is complete, click “Edit Company Profile” and print this one-page document.
- This one-page document must be submitted prior to a contract or purchase order being issued.
- For further assistance please consult the E-Verify Quick Reference Guide.

If you have previously enrolled in E-Verify, follow these instructions:

- Log onto www.uscis.gov/everify
- Click “Edit Company Profile” and print this one-page document.
- This one-page document must be submitted prior to a contract or purchase order being issued.

2.0 QUALIFICATIONS AND STANDARDS

Due to the importance of maintaining a safe University environment, it is imperative that the successful bidder meet certain qualifications that will guarantee The University of Alabama the successful Bidder is qualified to furnish and deliver products, equipment and services or furnish, deliver, install, service and/or repair equipment whichever is applicable as required in this Solicitation. In order for Bidders to qualify, the following requirements must be fulfilled:

2.1 The Bidder, if requested, must provide in writing, a statement that the Bidder has been regularly engaged in business for a minimum three (3) years engaging in furnishing, delivering, servicing, repairing and installing, equipment, goods, or services required in this Solicitation. In lieu of the minimum number of years in business, a performance bond may be required in the amount of one hundred (100%) percent of the contract price. This bond will be used to secure the completion of the project should the successful Bidder default for any reason. Failure to comply with this requirement may eliminate your bid response from consideration.

2.2 Each bidder required to provide a bond, shall submit a letter from a bonding agent licensed to do business in the State of Alabama stating that if the bidding company is the successful bidder, said bonding agent will furnish a 100% performance and payment bond covering and including products and service for the duration of the contract period. Said bond shall be subject to the approval and acceptance of The University of Alabama. The Letter and Bond shall be submitted to the University Purchasing Department and must be furnished within forty-eight (48) hours after request. The premium of the bond shall be paid by the successful bidder. Failure to provide the bond letter or bond will eliminate your bid from consideration in the bid award.

3.0 REFERENCES

References must include at least three (3) other universities, institutions or businesses, which the bidder has successfully provided products, services or installation of equipment similar to those required in this Solicitation in terms of manufacturer, size, features, service or type of installation. The references must include company name, address, project/delivery date, contact name, phone number, and email address.

4.0 PRODUCT SPECIFICATIONS

Specify all terms and conditions of the warranties associated with your products with your bid response.

5.0 PRICE QUOTATION

5.1 IMPORTANT: It is required that the PRICE QUOTATION SHEET(S) furnished with this Request for Price Quotation be completed and submitted with your proposal. DO NOT send generated price lists as your bid. Failure to comply with this request may eliminate your bid from consideration in the bid award.

5.2 All prices shall be quoted furnish and install (if applicable) FOB The University of Alabama, Tuscaloosa, AL 35487 prepay and allowed. Unit prices quoted must include any and all shipping and handling charges. Any freight claims will be the responsibility of the Bidder. The successful Bidder must transport at the time of set-up, the equipment and supplies necessary for this installation to campus. No direct shipments will be accepted.

5.3 It is the Bidder's responsibility to verify any information, measurements and obtain any clarifications prior to submitting the bid response. The University is not liable for any errors or misinterpretations made by the Bidder in response to this Solicitation.

5.4 The successful Bidder under the specifications required in this Solicitation shall furnish at its expense all equipment, labor, tools, supplies, transportation, insurance and other expenses necessary to fully perform any phase of the requirements of this Solicitation.

5.5 Quote prices firm for a period of ninety (90) days following the bid opening date unless otherwise stated in the Special Conditions. Bids that do not guarantee pricing firm for this period may be eliminated. Failure to quote the term for which your prices will remain firm may eliminate your bid from consideration.

5.6 The quoted price must include but not be limited to all cables, wires, connectors, etc. to make a complete functioning unit unless specifically stated in the special conditions.

5.7 Include with your bid response complete details of your company's Return Merchandise policy, including, but not limited to, amount of any restocking fee required, procedures, limitations, contact person and phone number. While the University does not enter into any purchase with the intent to return items ordered, we do require this information be included with your bid response. Failure to include this information may be grounds for elimination of your bid from consideration.

6.0 DELIVERY, INSTALLATION AND TRAINING REQUIREMENTS

6.1 Proposed delivery dates shall be stated in number of calendar days after receipt of order.

6.2 All items must be delivered directly to the University by the successful Bidder and placed according to the instructions supplied by the University.

7.0 INSURANCE

7.1 See General Terms and Conditions for general Insurance Requirements, Additional Insurance requirements may be listed in the Special Conditions Section.

7.2 The successful Bidder shall provide the University Purchasing Department a certificate of insurance listing the required types of insurance and minimum liabilities specified in the General Terms and Conditions unless otherwise modified in the Special Conditions.

7.3 The certificate must be received by The University of Alabama Purchasing Department within three (3) days of request. Failure to comply with this request may eliminate your bid from consideration in the bid award.

7.4 The University reserves the right to terminate any resulting contract, if the Bidder fails to keep these policies in force for the above amounts or for the duration of the contract period.

7.5 The umbrella policy must be listed on the insurance certificate with an explanation of the coverage.

8.0 RESTRICTIONS ON COMMUNICATIONS WITH UNIVERSITY STAFF

From the issue date of this Solicitation until a Contractor is selected and a contract award is made, Bidders are not allowed to communicate about the subject of the IFB with any University administrator faculty, staff, or members of the Board of Trustees except:

- The Purchasing Department representative, any University Purchasing Official representing the University administration, or others authorized in writing by the Purchasing Office and
- University Representatives during Bidder presentations.

If violation of this provision occurs, the University reserves the right to reject the Bidder's response to this Solicitation.

9.0 SPECIAL CONDITIONS

9.1 The University of Alabama is requesting sealed bids to furnish, deliver and install a Variable Pressure Scanning electron Microscope as per attached Specification/Quotation Sheet or equal.

9.2 Delivery four (4) weeks after contractor's receipt of a purchase order. Specify in your bid if your company can meet this delivery requirement.

9.3 GENERAL TERMS AND CONDITIONS – 6. Insurance
A certificate of insurance will be required prior to awarding the bid. Vendor must meet the requirements as outlined.

9.4 An electronic version of University's Terms and Conditions and instructions to Respondents are available through The University of Alabama website:

http://purchasing.ua.edu/purchgenterms.html

http://purchasing.ua.edu/vendors/instructions-to-bidders.pdf

10.0 QUOTE SHEET

QUOTE THE FOLLOWING ITEMS OR EQUAL

SCOPE: THE UNIVERSITY OF ALABAMA REQUESTS SEALED BIDS TO FURNISH, DELIVER AND INSTALL A VARIABLE PRESSURE SCANNING ELECTRON MICROSCOPE AS PER ATTACHED GENERAL AND TECHNICAL SPECIFICATIONS OR EQUAL.

NOTES:

10.1 The manufacturer and product number for each item that you are quoting must be completed for your bid to receive consideration.

10.2 **PLEASE INCLUDE PRODUCT/TECHNICAL SPECIFICATIONS** FOR YOUR BIDTO RECEIVE CONSIDERATION.

10.3 All items must be fully warranted for a minimum period of the specified manufacturer's warranty. Service or replacements of any defective items are to be proved by the successful contractor at no charge to the University during the period of guarantee.

10.4 THE UNIT COST OF EACH ITEM must include any shipping and handling charges. Do NOT list shipping and handling as a separate charge. QUOTE FOB THE UNIVERSITY OF ALABAMA, TUSCALOOSA, AL 35487.

ITEM NO.	APPROX. QTY.	DESCRIPTION	UNIT COST	TOTAL COST
1.	1	(New) HITACHI S-3400N-II Variable Pressure Scanning Electron Microscope (SEM) System ***PRODUCT SPECIFICATIONS LOCATED AT www.hitachi-hta.com. ALSO SEE ATTACHED SPECIFICATIONS *** MANUFACTURER_____ PRODUCT NO. _____	$_____	$_____
2.	1	52E-4089 4 Stub Holder, (15x4p), for Type 2. Mounts 4 standard stub (15mm). Stub can be selected by the stage Control menu MANUFACTURER_____ PRODUCT NO. _____	$_____	$_____
3.	1	50E-0524NS Wehnelt for Pre-centered Cartridge Filament MANUFACTURER_____ PRODUCT NO. _____	$_____	$_____

4.	1	NS0-0125 Infrared Chamberscope, 7” Monitor (Model CHS05A-48)	$_____	$_____
		MANUFACTURER_____ PRODUCT NO. _____		
5.	1	52E-0530 Environmental Secondary Electron Detector (ESED). Variable Pressure Secondary Electron Detector For Type 1 and 2.	$_____	$_____
		MANUFACTURER_____ PRODUCT NO. _____		
6.	1	RFQ-Deben Coolstage Substage for heating & cooling Specimens in low vacuum SEMs which helps to retain Water and stop specimen structure from changing during Observation. Temp range from -25 to +50 degrees C	$_____	$_____
		MANUFACTURER_____ PRODUCT NO. _____		
7.	1	52E-3986 Connector Kit for Deben Cool Stage, For Type 2	$_____	$_____
		MANUFACTURER_____ PRODUCT NO. _____		

OPTIONS:

8.	1	On-site Installation and Set Up Of Variable Pressure Scanning Electron Microscope	$_____
9.	1	On-site Training for Advanced Application Training and Basic Training on systems	$_____
10.	1	Off-site Training for Advanced Application Training and Basic Training on systems	$_____

11.	1	Extended Warranty (warranty beyond the manufacture's published warranty)	$_____

Less Educational Discounts $_____

GRAND TOTAL $_____

NOTE: Warranty on Equipment quoted:

Does warranty include parts & labor: _____Yes _____ No

Extended Warranty: Details of services offered and coverage time frame, etc..:

INSTALLATION: Responsibilities related to installation:

Define and explain all of **your company's** responsibilities related to the installation of the equipment requested in the bid:

Define and explain the **University's** responsibilities related to the installation of the equipment requested in the bid:

NOTE: Details for On-site Training (# of days, details, etc.):

Size of the crates & cartons in the shipment (dimensions & weight):

Who is responsible for unloading the equipment from the truck?

Is a forklift or other rigging needed to unload and place the equipment? Please explain:

NOTE: List ECCN (Export Control Classification Number) for items quoted:

Delivery is needed in four (4) weeks.

Can you meet this delivery requirement: _____ Yes _____ No

If No, specify earliest delivery date: _____

11.0 Technical Compliance Sheet for Variable Pressure Scanning Electron Microscope

The University has established minimum technical specifications for the proposed products and services in order to meet the University's needs. Please follow the instructions below for completing the 11.0 Technical Compliance of Variable Pressure Scanning Electron Microscope Specification Sheet.

1) Respond on this Compliance Sheet – Technical Compliance of Proposed System below and mark the correct column with an " X" indicating that your proposed system "Complies", Partially Complies" or "Does Not Comply". Do NOT add any explanation to the compliance sheet.

2) Explanation of Answers - Attach sheets which explain each of your answers below and address in detail your Variable Pressure Scanning Electron Microscope compliance of each specification listed on this compliance sheet. Your explanations should be in numerical order of the specifications in which they are listed below. Use the numbering of the specification to reference the specification. It is not necessary to repeat the specification on the attached sheet. References to websites, URLs or documents not included in the Proposal are not acceptable responses.

No.	Technical Specifications	Complies	Partially Complies	Does Not Comply
11.1	**DESIGN**			
11.1.a	The Scanning Electron Microscope (SEM) must be a state of the art computer controlled system and support a variety of analytical attachments including an Energy Dispersive X-ray System (EDS).			
11.1.b	The SEM will provide the capability of observing sample over a wide range of accelerating voltages. It will be capable of observing uncoated samples by means of a variable pressure (VP) sample chamber equipped with a backscattered electron detector (BSED). It must be possible to quickly switch the sample chamber between VP and high vacuum modes via software only, without the need to manually change or adjust any hardware within the sample chamber.			
11.1.c	The SEM must have system protection against power, heat and vacuum failures.			
11.1.d	The SEM shall be shown to meet all specifications within this document, in addition to published specifications, at www.hitachi-hta.com.			
11.2	**PERFORMANCE; MINIMUM REQUIRMENTS**			
11.2.a	The SEM shall be capable of achieving a resolution of at least 3.0nm at 30kV and 10 nm at 3kV with a secondary electron detector (SED) in high vacuum mode. The SEM shall be capable of achieving a resolution of at least 4.0nm resolution with a backscattered electron detector (BSED) in VP mode. These must be demonstrated using a standard tungsten filament, without the need to change or adjust "differential" apertures or other hardware within th samples chanber while going between hgih vacuum and VP modes.			
11.2.b	The analytical WD shall be no greater than 10mm and the chamber's EDS ports will provide a take-off-angle of at least 35 degrees for EDS analysis.			
11.2.c	The usable magnification range should be variable from 5X to 300,000X, regardless of vacuum mode, using a minimum of 143 steps.			
11.2.d	The accelerating voltage shall be adjustable from 300V to 30kV, with available increments of at least 10V, 100V and 1000V from 300V to 9.99kV and 100V or 1000V increments from 10kV to 30kV. The entire voltage range and increments options shall be available regardless of vacuum mode.			
11.2.e	The SEM shall have a variable pressure (VP) 6Pa to 270Pa.			
11.2.f	Adjustment of sample chamber vacuum level must be accomplished through the SEM software interface and must not rely on any manual hardware adjustments.			
11.2.g	Selected VP vacuum level must be continuously monitored and adjusted to ensure accuracy and reproducibility. When in VP mode, the pressure at the specimen area should be displayed on the image screen and recorded automatically with the digital image.			
11.2.h	The SEM shall have the capability go directly from atmospheric pressure to the requested VP level without the need to first take the specimen chamber to high vacuum.			
11.2.i	The SEM shall have a power requirement of 2kVA or less.			
11.2.j	The SEM "footprint" must not exceed 5.1' (Width) x 2.7' (Depth).			
11.3	**Electron Optics: Minimum requirements.**			
11.3.a	The electron gun shall be a cartridge-type wehnelt assembly. Filaments should be pre-centered requiring no alignment to the wehnelt assembly.			
11.3.b	The SEM shall provide auto filament saturation, auto emission current, auto gun alignment and auto condenser lens alignment in both high vacuum and VP mode. Filament saturation at low, medium or high presets shall be continuously monitored and automatically adjusted, requiring no manual adjustments at any time.			

11.3.c	The SEM shall provide continuous gun bias adjustment and selectable presets throughout the entire kV range. In addition to software settings to adjust the bias of the Wehnelt cap, the electron gun hardware shall utilize a quad-bias design, providing four separate resistor circuits to increase emission current over four discreet kV ranges, in high vacuum and/or VP modes, without degrading filament life.			
11.3.d	The SEM column shall be mounted in center of chamber and not offset to the side.			
11.3.e	The SEM column shall utilize a single “column liner” to hold and facilitate easy replacement of all column apertures between the gun and objective lens (OL) aperture (excluding, the OL aperture). The column liner should be readily accessible from below the gun and not require any disassembly of the column or access via the chamber. SEMs that include a column liner for only 1 or 2 condenser apertures will not be considered.			
11.3.f	The SEM shall utilize dual condenser lenses, which allow adjustment of spot size without focus change or image shift.			
11.3.g	The SEM shall provide the ability to automatically deflect the electron beam away from the specimen after completing image capture (beam blanking) to avoid beam damage or charging the sample. Manual beam deflection, by clicking the mouse, shall also be available.			
11.3.h	Whether the instrument is in high pressure or VP modes, there must be no restriction in the use of basic operating parameters such as selectable magnification or accelerating voltage ranges, i.e., the same range of magnification must be selectable, regardless of vacuum mode.			
11.3.i	The SEM’s auto functions (brightness/contrast, focus, stigmation, gun alignment, filament saturation and aperture alignment) must operate in both the high vacuum and VP modes without restriction. Manual overrides should also be available for all auto-functions.			
11.3.j	The SEM must provide a variable objective aperture which is adjustable outside of the vacuum. The objective aperture shall consist of an aperture strip with at least five-positions (four apertures plus “open”) and utilize a click-stop assembly (not a micrometer).			
11.3k	The SEM shall provide “hands free” automatic objective aperture alignment of the beam via a single button in the software. An automatic beam wobbler shall be included to allow manual alignment of the objective aperture if desired.			
11.3.l	The optics must provide an electrical image shift of ±50 microns at the standard analytical and imaging working distance of 10mm.			
11.3.m	The SEM software shall include a filament imaging function that can be used to monitor the alignment and cleanliness of the column. This feature must be operational in both the high vacuum and VP modes.			
11.4	**Specimen Chamber and Stage: Minimum requirements.**			
11.4.a	The SEM chamber shall provide at least 10 available ports for interfacing a variety of detectors and accessories (EDS, EBSD, CL, Faraday, chamber scope, feed-throughs, etc.).			
11.4.b	The SEM chamber shall provide three high take-off ports, suitable for EDS or other x-ray detectors, focusing at an analytical working distance (AWD) of 10mm. The primary EDS port shall be in the plane of the stage tilt and the second shall be 180 degrees from that port. The third port shall bisect the first two.			
11.4.c	The SEM chamber must have a port directly below and planar with the EDS port, suitable for mounting an EBSD camera/detector, and providing optimal geometry for simultaneous EDS/EBSD data collection.			
11.4.d	The chamber shall accommodate up to a 200mm diameter sample.			
11.4.e	The chamber door will open using a rail guide mechanism, not hinge(s).			
11.4.f	The SEM stage shall be affixed to chamber door, such that it is removed from the chamber and fully accessible outside of the chamber when the door is opened.			
11.4.g	The stage shall be computer controlled, with 5-axis computer eucentric (X, Y, Z, R, and T) motorization and provide an X/Y travel of at least 100mm x 50mm, Z travel from 5 to 65mm and a tilt range of minus 20 to 90 degrees.			
11.4.h	The SEM software shall provide an interactive, graphical “joystick” to control all five axes of the motorized stage with the mouse. Automatic software limits, set by the computer, will be available to prevent collision between the sample and chamber interior.			
11.4.i	The SEM shall have the capability to image, from edge to edge, a sample 5 inches in diameter. It will be able to image a 85mm tall sample and allow for EDS microanalysis of a 80mm tall sample at 10mm AWD, without having to disassemble the stage or losing X, Y, Z, R, or T stage motorization.			
11.4.j	The stage shall have a move function capable of using a stored image to return to the same stage coordinates at which the image was captured.			

11.4.k	The SEM shall include an image navigation function that allows an imported image (Image from any camera, optical microscope, etc.) or low magnification SEM reference image to be used for moving the stage to any selected regions on the sample. The image navigation function shall also allow automatic changing of magnification to match a region's area.			
11.4.l	The SEM shall provide a stage history function to graphically display stage movement and log every position where an image was acquired. The SEM will return to any logged location when selected/clicked on with the mouse.			
11.4.m	Vendor shall supply 4 Stub Sample Holder, (15x4). Mounts 4 standard stub (15mm).Stub can be selected by the stage control menu.			
11.4.n	The vendor shall supply a Deben Coolstage sub-stage for heating and cooling specimens (temperature range of -25 to +50 degrees C) in the low vacuum mode which helps to retain water and stop specimen structures from changing during observation. This should also include the necessary SEM stage S/W to prevent any damage to the stage or column of the SEM during operation of the cold stage. The stage of the SEM must allow the operator to precondition the sample outside SEM before placing in the chamber and evacuating.			
11.5	**Vacuum System: Minimum requirements.**			
11.5.a	The SEM shall be designed to use a turbomolecular pump (TMP), rated for at least 200 L/minute, for high vacuum operation. The TMP shall have a backing pressure that requires only one rotary pump.			
11.5.b	The SEM shall require only one rotary roughing pump (RP), rated for at least 160 L/minute. The RP will be used for evacuation of the high vacuum pump and control of the chamber pressure while operating in the VP mode.			
11.5.c	System evacuation following sample exchange shall not exceed 2 minutes. Initial system startup time from a "cold" state must not exceed 6 minutes.			
11.5.d	The SEM column shall provide vacuum conduits at both the electron gun chamber and objective lens aperture to maintain high vacuum throughout the column regardless of the specimen chamber operating pressure.			
11.6	**Electron Detectors**			
11.6.a	The SEM shall include a conventional Everhart-Thornley secondary electron detector (SED).			
11.6.b	The SEM shall include an integrated secondary electron (SE) bias accelerator plate, placed near the objective lens, to increase the collection yield of the SED at short working distances. The SE accelerator plate voltage must be adjustable, via the SEM interface, to provide high resolution, normal or topographical images.			
11.6.c	The SEM shall include a five-segment, solid-state backscattered electron detector (BSED) in a "quad plus one" configuration.			
11.6.d	Each segment shall have a dedicated pre-amp circuit to allow independent control of gain and polarity (+, - and off) for each segment of the detector, selectable via the user interface.			
11.6.e	The BSED will include preset compositional, topographical and "3D" imaging modes, with options for controlling perspective.			
11.6.f	Each of the BSED's quad segments shall be capable of independently producing a specimen image showing compositional and topographical angles.			
11.6.g	The mode of BSED operation shall be automatically listed on the data bar of the SEM and captured with the image.			
11.6.h	The brightness and contrast adjustments for the BSED must be made through the same controls for the SED.			
11.6.i	The BSED shall allow specimens to be imaged at a working distance of 5mm or less. Location of the detector must not hinder high resolution SE imaging or limit EDS analysis.			
11.6.j	The BSED will be able to provide a clear image, suitable for focus and stigmation, while operating at TV scan rates.			
11.6.k	BSED will have both inserted (operational) and retracted (parked) positions. The SEM operator will be able to mechanically move the BSED between the two positions, without having to physically touch the detector.			
11.6.l	The SEM shall be equipped with a special "environmental" SED for use while in the VP mode of operation. All automatic functions such as auto-focus and auto brightness shall be fully functional when using this detector. The detector must be software controlled with operating parameter selection located in one dialog box. The detector must also be functional at the longest working distance provided by the microscope.			
11.7	**Scanning/Display System: Minimum requirements**			

11.7.a	The SEM must employ a Windows 7 based Graphical User Interface (GUI) that allows control of commonly used functions through keyboard and mouse.			
11.7.b	The SEM shall provide a movable knob set which permits control of frequently used parameters such magnification brightness and contrast, focus, stigmation, etc.			
11.7.c	The microscope must incorporate as standard a high-resolution frame memory system of at least 5120 x 3840 pixel resolution for captured images.			
11.7.d	The SEM shall be capable of capturing and storing images at 640 x 480, 1280 x 960, 2560 x 1920 or 5120 x 3840 pixel resolution with integration from 1 to 1024 frames.			
11.7.e	The SEM shall provide live time signal mixing of the SED, BSED and/or the VP SED signals.			
11.7.f	The SEM must have at least 2 true TV scan rates, 2 fast scan rates, 5 slow-scan rates, reduced raster, linescan, waveform monitor, direct photo, memory photo and frame integration, up to 1024 frames.			
11.7.g	The SEM shall provide X-ray mode functions including spot, line and reduced area raster for EDS operation.			
11.7.h	The software shall include a “full screen mode” in which the live image fills the monitor. The SEM must also include a standard screen mode and a reduced area mode.			
11.7.i	The SEM shall provide raster rotation, tilt compensation and dynamic focus.			
11.7.j	The SEM shall include a digital beam control (DBC) interface to allow for external control by an EDS system.			
11.7.k	A BNC type RS-170 output shall be provided to interface between an external monitor, video grabber or other devices.			
11.7.l	Digital stereo pair imaging capability must a standard feature within the SEM/image capture system. The software must allow alignment of the digital images.			
11.7.m	The system will provide the ability to form an oblique (or bird's-eye-view) image from a captured image, providing a three dimensional visualization and topographic information that may not be represented in the captured SEM image.			
11.7.n	3D surface roughness software that works in conjunction with a 5-Quad BSED must be optionally available. This program will provide state of the art 3D viewing (without special glasses), animation and surface roughness profiling with no physical tilting of SEM stage.			
11.8	**General Operation: Minimum requirements**			
11.8.a	The SEM operating software shall incorporate an “auto beam setting” mode that automatically sets the filament saturation level, aligns the gun and sets the bias after a filament change without any manual gun or column alignments.			
11.8.b	The SEM operating software must provide a function to save imaging parameters as a re-loadable conditions file along with a thumbnail image for any sample. The saved parameters shall include, at a minimum: magnification, beam current, WD, detector, vacuum mode, stage position, contrast, stigmation/alignment and accelerating voltage.			
11.8.c	The software shall provide the ability to label images with a customizable data bar that can include, at the minimum: accelerating voltage, magnification, micron bar, working distance value, date, time, detector, BSED detector mode, comment, graphic, measurement and vacuum level for VP mode. The data bar must also include the capability to have a black or transparent background behind the data.			
11.8.d	User-input alphanumeric data that is inserted onto an image shall employ “edging” techniques that eliminate the need for use of a “black background” for visibility even if data is placed in an area of extreme image brightness.			
11.8.e	The SEM operating software shall provide both an illustrated on-line help system and user manual with illustrations.			
11.8.f	The SEM shall include animated computer videos for maintenance procedures such as filament exchange, gun alignment, condenser lens aperture exchange and moveable objective aperture assembly exchange.			
11.8.g	The SEM operating software shall include an integrated, image database and management system. The system shall provide for saving, processing, measurement, annotation and archiving of all images and associated data and documents. The database should be integrated with the SEM, supported by the SEM manufacturer. Image transfer must be a one-button operation and should not require the import or export function.			
11.8.h	The SEM operating software shall provide report generation software, allowing customized report templates, adjustment of images and listing of operating parameters.			
	NOTE: ALL the above specifications must be answered item by item, as to compliance or non-compliance with explanations as to non-compliance. If this is not met a possible bid rejection may occur.			

11.0 Technical Compliance Sheet for Variable Pressure Scanning Electron Microscope EXPLANATION SHEET

11.0 Technical Compliance Sheet for Variable Pressure Scanning Electron Microscope EXPLANATION SHEET

THE UNIVERSITY OF ALABAMA

CERTIFICATION OF COMPLIANCE WITH THE STATE OF ALABAMA IMMIGRATION LAW

The undersigned officer of _____ (Company) certifies to the Board of Trustees of the University of Alabama that the Company does not employ an individual or individuals within the State of Alabama.

_____
SIGNATURE OF COMPANY OFFICER

_____
PRINT COMPANY NAME

_____
PRINT NAME OF COMPANY OFFICER

_____
PRINT TITLE OF COMPANY OFFICER

_____
DATE

E-Verify
Employment Eligibility Verification

Welcome User ID Last Login Log Out

Click any ? for help

Home

My Cases
- New Cases
- View Cases
- Search Cases

My Profile
- Edit Profile
- Change Password
- Change Security Questions

My Company
- Edit Company Profile
- Add New User
- View Existing Users
- Close Company Account

My Reports
- View Reports

My Resources
- View Essential Resources
- Take Tutorial
- View User Manual
- Contact Us

Company Information

Company Name: View/Edit

Company ID Number:

Doing Business As (DBA) Name:

DUNS Number:

Physical Location:

Address 1:

Address 2:

City:

State:

Zip Code:

County:

Mailing Address:

Address 1:

Address 2:

City:

State:

Zip Code:

Additional Information:

Employer Identification Number:

Total Number of Employees:

Parent Organization:

Administrator:

Organization Designation:

Employer Category:

Federal Contractor Category:

Employees being verified:

NAICS Code: View/Edit

Total Hiring Sites: View/Edit

Total Points of Contact: View/Edit

View MOU

THE UNIVERSITY OF
ALABAMA

DISCLOSURE STATEMENT

1. Contract/Purchase Order No. _____

2. Name of Contract/Grantee: _____
   Address: _____
   _____
   Telephone: _____
   Fax: _____

3. Nature of Contract/Grant: _____
   _____
   _____

4. Does the contractor/grantee have any relationships with any employee or official of the University, or a family member of such employee or official, that will enable such employee or official, or his/her family member, to benefit from this contract? If so, please state the names, relationships, and nature of the benefit.
   _____
   _____
   _____

(For employees of the University, family members include spouse and dependents. For members of the Board of Trustees (officials), family members include spouse, dependents, adult children and their spouses, parents, in-laws, siblings and their spouses.)

This Disclosure Form will be available for public inspection upon request.

The above information is true and accurate, to the best of my knowledge.

_____
Signature of Authorized Agent of Contractor/Grantee

Date: _____

RETURN FORM TO: The University of Alabama
Purchasing Dept.
Box 870130
Tuscaloosa, AL 35487-0130
Ph: (205) 348-5230
Fax: (205) 348-8706
www.purchasing.ua.edu